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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,728	11/10/2003	William M. Hiatt	2269-5558E US (99-0253.04)	5029
24247	7590	02/09/2005	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			KOSOWSKI, ALEXANDER J	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/705,728

Applicant(s)

HIATT ET AL.

Examiner

Alexander J Kosowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/03/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

- 1) Claims 1-33 are presented for examination.

#### *Specification*

- 2) The abstract of the disclosure is objected to because it contains descriptive data not corresponding to the claimed invention. The abstract appears to cover all aspects of the specification, but is not a good description of the actual specific claimed invention. Correction is required. See MPEP § 608.01(b).

#### *Claim Rejections - 35 USC § 102*

- 3) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 4) Claims 1-5, 8-9, 13-25, 28-30 and 32-33 are rejected under 35 U.S.C. 102(b) as being unpatentable by Jensen, Jr. et al (U.S. PG PUB 2001/0032111).

Referring to claim 1, Jensen teaches a method for supporting a substrate during programmed material consolidation of one or more objects on or adjacent to the substrate (Paragraphs 0049-0050), comprising: securing the substrate in position over a support surface and preventing unconsolidated material from contacting a bottom surface of the substrate (Paragraphs 0042-0043).

Referring to claim 2, Jensen teaches the method of claim 1, wherein securing the substrate in position over the support surface is effected by positioning the substrate at least partially within a receptacle formed by at least one raised element (Paragraph 0042).

Referring to claim 3, Jensen teaches the method of claim 2, wherein securing the substrate in position over the support surface includes disposing a retention lip extending laterally from the at least one raised element over at least a portion of a periphery of the substrate (Figure 5).

Referring to claim 4, Jensen teaches the method of claim 3, wherein the retention lip contacts at least the portion of the periphery of the substrate (Figure 5).

Referring to claim 5, Jensen teaches the method of claim 4, further comprising: positioning at least one spacer between the support surface and the bottom surface of the substrate (Paragraph 0043 and Figure 5).

Referring to claim 8, Jensen teaches the method of claim 3, wherein disposing the retention lip comprises positioning a preformed retention lip over at least a portion of a periphery of the substrate (Paragraph 0043 and Figure 5).

Referring to claim 9, Jensen teaches the method of claim 2, wherein positioning the substrate comprises positioning the substrate within a receptacle formed by at least one raised element that substantially surrounds the substrate (Paragraph 0042).

Referring to claim 13, Jensen teaches the method of claim 2, wherein securing the substrate in position over the support surface includes applying a negative pressure to the bottom surface of the substrate (Paragraph 0042).

Referring to claim 14, Jensen teaches the method of claim 13, wherein securing the substrate in position over the support surface further includes positioning the substrate over a sealing element with a peripheral portion of the bottom surface of the substrate contacting the sealing element (Paragraph 0043).

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Referring to claim 15, Jensen teaches the method of claim 14, further comprising:  
breaking a seal between the sealing element and the bottom surface of the substrate (Paragraph 0043, whereby the seal is broken when the substrate is removed from the carrier).

Referring to claim 16, Jensen teaches the method of claim 1, wherein securing the substrate in position over the support surface includes applying a negative pressure to the bottom surface of the substrate (Paragraph 0042).

Referring to claim 17, Jensen teaches the method of claim 1, further comprising:  
removing the substrate from the support surface (Paragraph 0042, last 3 lines).

Referring to claim 18, Jensen teaches the method of claim 17, wherein removing the substrate comprises applying a positive pressure to the bottom surface of the substrate (Paragraph 0042, last 3 lines).

Referring to claim 19, Jensen teaches the method of claim 18, wherein applying a positive pressure to the bottom surface of the substrate includes creating a circulating air flow beneath the bottom surface of the substrate (Paragraph 0042).

Referring to claim 20, Jensen teaches the method of claim 19, wherein creating a circulating air flow beneath the bottom surface of the substrate causes the substrate to hover over the support surface (Paragraph 0042, whereby a positive pressure applied would cause the substrate to hover).

Referring to claim 21, Jensen teaches the method of claim 17, wherein removing the substrate comprises applying force to the bottom surface of the substrate (Paragraph 0042, last 3 lines).

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Referring to claim 22, Jensen teaches a programmed material consolidation method, comprising: positioning at least one substrate in a receptacle of a retention system including a raised periphery that laterally surrounds the at least one substrate (Paragraph 0042); introducing unconsolidated material onto a surface of the at least one substrate and programmably consolidating at least portions of the unconsolidated material (Paragraphs 0049-0050).

Referring to claim 23, Jensen teaches the programmed material consolidation method of claim 22, wherein introducing unconsolidated material comprises forming a layer of unconsolidated material of a desired thickness over the at least one substrate, then selectively consolidating regions of the layer (Paragraph 0050).

Referring to claim 24, Jensen teaches the programmed material consolidation method of claim 23, wherein introducing unconsolidated material further comprises repeating the acts of forming and selectively consolidating at least once (Paragraph 0050).

Referring to claim 25, Jensen teaches the programmed material consolidation method of claim 22, wherein introducing unconsolidated material includes substantially filling the receptacle with unconsolidated material (Paragraph 0050).

Referring to claim 28, Jensen teaches the programmed material consolidation method of claim 22, wherein introducing unconsolidated material comprises spraying unconsolidated material onto at least a portion of the at least one substrate (Paragraphs 0046 and 0049).

Referring to claim 29, Jensen teaches the programmed material consolidation method of claim 22, wherein introducing unconsolidated material comprises dispensing the unconsolidated material in a laminar flow (Paragraphs 0046 and 0049, whereby flowing liquid is considered a laminar flow).

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Referring to claim 30, Jensen teaches the programmed material consolidation method of claim 29, wherein dispensing is effected without introducing unconsolidated material onto structures that protrude from the at least one substrate (Paragraph 0046, whereby selected areas of the substrates may be avoided or purposely raised).

Referring to claim 32, Jensen teaches the programmed material consolidation method of claim 22, further comprising: preventing unconsolidated material from contacting a bottom surface of the at least one substrate while introducing unconsolidated material into the receptacle (Paragraph 0043).

Referring to claim 33, Jensen teaches the programmed material consolidation method of claim 22, further comprising: removing the at least one substrate from the receptacle following programmably consolidating at least portions of the unconsolidated material (Paragraph 0042, last 3 lines).

***Claim Rejections - 35 USC § 103***

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) Claims 6-7, 10-12, 26-27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen, further in view of White et al (U.S. Pat 6,463,349).

Referring to claims 6-12, Jensen teaches the above. However, Jensen does not explicitly teach that disposing the retention lip comprises forming the retention lip by programmed material consolidation processes, that forming the retention lip by programmed material

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consolidation processes includes employing stereolithography, disposing at least one extension element on an upper surface of the at least one raised element, that disposing the at least one extension element comprises fabricating the at least one extension element by programmed material consolidation processes, nor that forming the at least one extension element by programmed material consolidation processes includes employing stereolithography.

White teaches the use of stereolithography as a programmed material consolidation process, whereby objects having specific features may be created on a substrate (col. 1 line 35 through col. 2 line 31).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a stereolithographic process to form features on a substrate in the invention taught by Jensen since this would allow the fabrication of objects of arbitrary shapes to be realized (White, col. 2 lines 26-31) and since this process would allow the creation of varying thickness layers which would improve resolution (White, col. 7 lines 31-41).

Referring to claims 26-27 and 31, Jensen teaches the above. However, Jensen does not explicitly teach planarizing a surface of the unconsolidated material within the receptacle, wherein planarizing is effected with at least one of a meniscus blade and an air knife, and removing excess unconsolidated material from the receptacle following the programmably consolidating.

White teaches the use of stereolithography as a programmed material consolidation process, whereby objects having specific features may be created on a substrate (col. 1 line 35 through col. 2 line 31), and whereby excess material is removed using a variety of cutting tools including a knife (col. 2 lines 8-23).



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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a knife to remove excess material in the invention taught by Jensen since this would allow the fabrication of objects of arbitrary shapes to be realized (White, col. 2 lines 26-31), and since this would allow accurate cutting of an object being built (White, col. 2 lines 18-20)

***Conclusion***

7) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

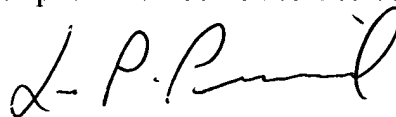
Tischler (U.S. PGPUB 2003/0114016) – teaches a wafer carrier utilizing a retention clip.\

8) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Alexander J. Kosowski  
Patent Examiner  
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**LEO PICARD**  
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